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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/655,778	09/05/2003	Thomas L. Beck	7193	6594

22922	7590	01/19/2010
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EXAMINER	
HAMO, PATRICK	

ART UNIT	PAPER NUMBER
3746	

NOTIFICATION DATE	DELIVERY MODE
01/19/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

IPAdmin@reinhartlaw.com

Office Action Summary	Application No. 10/655,778	Applicant(s) BECK ET AL.	
	Examiner PATRICK HAMO	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-21, 23-26 and 69-74 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20, 25 and 74 is/are allowed.
- 6) ☒ Claim(s) 17-19, 21, 23, 24, 26 and 69-73 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 31, 2009 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 17-19, 21, 23, 24, 26 and 69-73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Birkhead et al., US 6,536,522, in view of Odachi et al., US 6,869,272.

In regard to independent claim 17:

Birkhead discloses a pump control system for controlling a progressing cavity pump 60 for transferring fluid within a system, whereby the performance characteristics of the pump are controlled by a controller 25 (col. 4, lines 34-64).

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Birckhead does not disclose that the control method is accomplished without downhole sensors and in the manner claimed. However, Odachi teaches a control method for controlling a motor driving a compressor wherein an estimation unit 51 measures voltage and current supplied to a motor 1 and uses this information to determine the speed via speed control unit 61. The measured current also determines the torque via torque control unit 52 (also see Abstract) and determines the load required of the compressor so that the torque and speed inputs can be adjusted by command signals to more efficiently run the compressor in response to the performance value corresponding to load (col. 1, line 63 - col. 2, line 27). It would have been obvious to a person having ordinary skill in the art to have modified the control system of Birckhead with the system of Odachi that identifies situations in which motor parameters need to be adjusted to keep the fluid transfer device operating efficiently.

In regard to independent claim 69:

Birckhead discloses a pump control system for controlling a progressing cavity pump 60 for transferring fluid within a system, whereby the performance characteristics of the pump are controlled by a controller 25 (col. 4, lines 34-64). Birckhead does not disclose that the control method is accomplished without downhole sensors and in the manner claimed. However, Odachi teaches a control method for controlling a motor driving a compressor wherein an estimation unit 51 measures voltage and current supplied to a motor 1 and uses this information to determine the speed via speed control unit 61. The measured

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current also determines the torque via torque control unit 52 (also see Abstract) and determines the load required of the compressor so that the torque and speed inputs can be adjusted by command signals to more efficiently run the compressor in response to the performance value corresponding to load (col. 1, line 63 - col. 2, line 27). It would have been obvious to a person having ordinary skill in the art to have modified the control system of Birckhead with the system of Odachi that identifies situations in which motor parameters need to be adjusted to keep the fluid transfer device operating efficiently.

In regard to claims 18, 21, 23 and 26:

Birckhead discloses a step of using progressing cavity pump performance values to produce command signals comprises the steps of: selecting a progressing cavity pump performance parameter (head pressure, col. 4, ll. 34-36) to control; determining a setpoint (preset or historically stored values, col. 4, ll. 44-48) for the selected progressing cavity pump performance parameter; calculating a control signal using the setpoint value of the selected progressing cavity pump performance parameter (col. 4, ll. 49-50); and calculating the command signals from the control signal. It would have been obvious to apply Odachi's teaching with reference to compressor load to the pressure in Birckhead's pump as a pump performance value to regulate.

In regard to claims 19 and 24:

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Birckhead, though not explicitly disclosing that the pump parameter is pump flow, discloses that the pressure is adjusted by controlling the pump flow. Therefore, it would have been obvious to a person having ordinary skill in the art to have substituted setpoints and measurements for pump flow as opposed to pressure to achieve the same, predictable, result of controlling the pump of Birckhead. The relationship between pump flow is such that regulating pump flow as a parameter would achieve substantially the same objective. Therefore, it would have been obvious to one of ordinary skill in the art to use pump flow as the performance parameter to be set and measured.

In regard to claims 70-72:

Birckhead in view of Odachi teach all of the limitations substantially as claimed, notably means for using progressing cavity pump performance values to produce one or more command signals for controlling the speed of the progressing cavity pump (col. 4, ll. 49-50). Neither reference explicitly discloses using the progressing cavity pump performance values to produce command signals includes means for calculating a feedback signal indicative of the difference between a current value of a selected progressing cavity pump performance parameter and a setpoint value of the selected progressing cavity pump performance parameter, and means for calculating the command signals from the feedback signal. However, feedback control as described in the claimed limitations above are typical of elementary feedback control systems, such as the feedback control system for estimated speed input in Odachi et al. (see fig. 4). It

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would have been obvious to one of ordinary skill in the art that Birckhead, having sensors to measure actual production values and designed to set setpoint values, would use such feedback control as claimed by the applicant.

Allowable Subject Matter

Claims 20, 25 and 74 are allowed.

Response to Arguments

Applicant's arguments with respect to claims 17-19, 21-24, 26, and 69-73 have been considered but are moot in view of the new ground(s) of rejection. In particular, the reference to Odachi overcomes the deficiencies of the previously cited references. Full discussion of the new ground(s) of rejection are above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Anastos et al., US 5,324,170 teaches that a number of detectable changes in an electrical condition of the prime mover power supply circuit occur in a typical operating cycle of a pump, and that among these, current and voltage may be monitored to predict pump parameters.

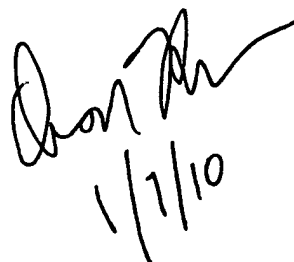
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to PATRICK HAMO whose telephone number is (571)272-3492. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Patrick Hamo/
Patent Examiner, AU 3746



1/7/10